WHAT IS CLAIMED IS:

1.   A color conversion method of inputting at least two color difference values and obtaining a corresponding saturation value, comprising steps of:

5   creating a main lookup table which stores saturation value for the color difference values, and a sub-lookup table for obtaining an address for accessing the main lookup table;

        determining the address of the main lookup table
10   in correspondence with two color difference values on the basis of the sub-lookup table and a difference between the two color difference values; and

        obtaining a saturation value corresponding to the two color difference values from the address determined
15   in said determining step.

2.   The method according to claim 1, wherein the main lookup table has a smaller number of entries than the number of all possible combinations of the two color
20   difference values by utilizing symmetry of the saturation value for the color difference values.

3.   The method according to claim 1, wherein the sub-lookup table stores an address of an entry in which
25   the two color difference values are the same.

4.   A lookup table for obtaining an output value

defined for an input value, comprising:

a main lookup table adapted to, when a definition of an output value has or is regarded to have symmetry for a plurality of input values, or when a combination

5   of the plurality of input values is limited by a specific existence condition, store the output values for the plurality of input values in consideration of at least one of the symmetry and the specific existence condition; and

10   a sub-lookup table adapted to store an address of an entry in which the plurality of input values are the same,

wherein an address of said main lookup table is determined on the basis of said sub-lookup table and a

15   difference between the two input values, in correspondence with two arbitrary input values.

5.   The table according to claim 4, wherein the specific existence condition includes a color space.

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6.   The table according to claim 4, wherein the output value includes a saturation in a color space determined in advance.

25   7.   An image processing apparatus for inputting image data and obtaining a corresponding saturation value, comprising:

calculation means for calculating a color

difference value of each pixel of the input image data;

a main lookup table adapted to store saturation

values for the color difference values;

5   a sub-lookup table adapted to obtain an address

for accessing said main lookup table in correspondence

with the color difference value;

determination means for determining the address

of said main lookup table in correspondence with two

10   color difference values of pixels calculated by said

calculation means, on the basis of said sub-lookup

table and a difference between the two color difference

values; and

read means for accessing said main lookup table

15   on the basis of the address determined by said

determination means and reading out a corresponding

saturation value.

8.   The apparatus according to claim 7, wherein said

20   main lookup table has a smaller number of entries than

the number of all possible combinations of the two

color difference values by utilizing symmetry of the

saturation value for the color difference values.

25   9.   The apparatus according to claim 7, wherein said

sub-lookup table stores an address of an entry in which

the two color difference values are the same.